

We claim:

1. A method of representing a multimedia content management object as an item in a relational database adapted for representing multimedia content management data in one or more relational database tables, each of said relational database tables having at least one row with a plurality of columns, said method comprising:
  - a. associating a root component of the object as an item to a row in a first relational database table;
  - b. associating attributes of the root component to corresponding columns of the first relational database table;
  - c. associating additional components of the object, if any, to rows in additional relational database tables; and
  - d. wherein the item is used as a building block to construct a plurality of high level content management data models.
2. The method of claim 1 wherein each of the additional components comprises a child component of a root component or a child component of another component.
3. The method of claim 2 comprising using a foreign key in a child component to reference its parent component.
4. The method of claim 1 wherein an attribute comprises a pointer to a data resource stored in a separate repository.
5. The method of claim 1 wherein an attribute comprises a pointer to another content management object.
6. The method of claim 1 wherein a row in an table comprises a link between a source item and a target item.

7. A method of representing a multimedia content management object in a database comprising a high level content model and a low level physical model of the multimedia content data, said low level physical model providing a mapping to a data engine, said method comprising:
  - 5 a. entering multimedia content data metadata and schema in the low level physical representation, and
  - b. mapping the metadata and schema to the data engine.
8. The method of claim 7 wherein the low level physical model supports a plurality  
10 of high level content models.
9. The method of claim 7 a high level content model comprises an application program interface embodying a representation of data structure and constraints.
10. The method of claim 7 the high level content model supports a plurality of content  
15 application requirements.
11. The method of claim 7 wherein the low level model is extensible.
12. The method of claim 7 adding additional high level content models.  
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13. The method of claim 7 wherein the data engine is chosen from the group consisting of relational database management systems, object oriented database management systems, object-relational database management systems and XML  
25 data repositories.

14. A method of managing a multimedia content management system comprising a multimedia content management object comprising multimedia object components and multimedia object attributes, and a relational database adapted for representing multimedia content management data in one or more relational database tables, each of said relational database tables having at least one row with a plurality of columns, said method comprising:
- a. associating a root component of the object to a row in a first relational database table;
  - b. associating attributes of the root component to corresponding columns of the first relational database table;
  - c. associating additional components of the object, if any, to rows in additional relational database tables; and
  - e. wherein the item is used as a building block to construct a plurality of high level content management data models.
15. The method of claim 14 wherein each of the additional components comprises a child component of a root component or a child component of another component.
16. The method of claim 15 comprising using a foreign key in a child component to reference its parent component.
17. The method of claim 14 wherein an attribute comprises a pointer to a data resource stored in a separate repository.
18. The method of claim 14 wherein an attribute comprises a pointer to another content management object.
19. The method of claim 14 wherein a row in another table comprises a link between a source item and a target item.

20. A system for managing and delivering multimedia data object items from a multimedia data object content repository through a multimedia data object content server to a client, wherein the multimedia data object comprises multimedia data object items, each of the multimedia data object items comprising multimedia data object attributes and components, and wherein the multimedia data object content server is controlled and configured to:

- a. associate a root component of the object to a row in a first relational database table;
- b. associate attributes of the root component to corresponding columns of the first relational database table; and
- c. associate additional components of the object, if any, to corresponding rows in additional relational database tables;

wherein the item is used as a building block to construct a plurality of high level data models.

21. The system of claim 20 wherein each of the additional components comprises a child component of a root component, or a child component of another child component.

22. The system of claim 21 wherein a foreign key is used in a child component to reference is parent component.

23. The system of claim 20 wherein an attribute comprises a pointer to a data resource stored in a separate repository.

24. The system of claim 20 wherein an attribute comprises a pointer to another content management object.

25. The system of claim 20 wherein a row in another table comprises a link between a source item and a target item.

26. A program product comprising computer readable code on one or more media, said program code being capable of controlling and configuring a computer system having one or more computers to manage a multimedia content management system having a high level content model and a low level physical model of the multimedia content data, said low level physical model providing a mapping to a data engine, by representing a multimedia content management object in a database by the method comprising:

- a. entering multimedia content data metadata and schema in the low level physical representation, and
- b. mapping the metadata and schema to the data engine.

27. The program product of claim 26 wherein the low level physical model supports a plurality of high level content models.

28. The program product of claim 26 a high level content model comprises an application program interface embodying a representation of data structure and constraints.

29. The program product of claim 26 the high level content model supports a plurality of content application requirements.

30. The program product of claim 26 wherein the low level model is extensible.

31. The program product of claim 26 wherein the low level physical model supports additional high level content models.

32. The program product of claim 26 wherein the data engine is chosen from the group consisting of relational database management systems, object oriented database management systems, object-relational database management systems, and XML data repositories.

33. A program product comprising computer readable code on one or more media, said program code being capable of controlling and configuring a computer system having one or more computers to manage a multimedia content management system comprising a multimedia content management object having multimedia object components and multimedia object attributes, and a relational database adapted for representing multimedia content management data in one or more relational database tables, each of said relational database tables having at least one row with a plurality of columns, by a method comprising:

- a. associating a root component of the object to a row in a first relational database table;
- b. associating attributes of the root component to corresponding columns of the first relational database table; and
- c. associating additional components of the object, if any, to rows in additional relational database tables;

wherein the item is used as a building block to construct a plurality of high level data models.

34. The program product of claim 33 wherein a component comprises a child component of a root component or a child component of another child component.

35. The program product of claim 34 containing program code to direct a computer system to use a foreign key as a child component to reference its parent component.

36. The program product of claim 33 wherein an attribute comprises a pointer to a data resource stored in a separate repository.

37. The program product of claim 33 further comprising program code of populating a multimedia content management system with content schema and metadata, said program code adapted to configure and control the computer to

- a. present a query to a user as to a content item;
- b. based upon the end user's response, present a subsequent query as to the content item;
- c. based upon the responses, determine the sub-components and attributes of the item.

38. A method of populating a multimedia content management system with content schema and metadata, said multimedia content management comprising a multimedia content management object having multimedia object components and multimedia object attributes, and a relational database adapted for representing component and attribute data in one or more relational database tables, each of said relational database tables having at least one row with a plurality of columns, said method comprising:

- a. presenting a query to a user as to a content item;
- b. based upon the end user's response, presenting a subsequent query as to the content item;
- c. based upon the responses, determining the sub-components and attributes of the item; and
- d. associating attributes and components, if any, of the object to corresponding columns of the relational database tables.

39. The method of claim 38 comprising using a foreign key in a child component to reference its parent component.

40. The method of claim 38 wherein a component comprises a child component of a root component or a child component of another child component.

41. The method of claim 38 wherein an attribute comprises a pointer to a data repository where the component is stored.

42. The method of claim 38 wherein an attribute comprises a pointer to a data resource stored in a separate repository.
43. The method of claim 38 wherein a row in another table comprises a link between a source item and a target item.